

Appl. No. 10/085,398
Amdt. dated February 3, 2004
Reply to Office action of 11/12/2003

REMARKS

Summarizing this amendment, claims 2, 9, 13 and 16 have been amended; claims 3-6, 10, 11, 14 and 15 remain unchanged; claims 17 and 18 stand withdrawn; claims 1, 7, 12 and 19-24 have been canceled; and claims 25-30 have been added. Thus, claims 2-6, 8-11, 13-16 and 25-30 are presented for consideration as are withdrawn claims 17 and 18.

Turning first to the rejection of claims 5 and 10 for failure to describe the invention with the clarity prescribed by 35 USC 112, applicant requests reconsideration. The two claims specify that the bearing has two inner raceways – one in an inboard position and the other in an outboard position – and two outer raceways – again one in an inboard position and the other in an outboard position. In addition, it calls for rolling elements arranged in two rows – one row being between the inner and outer raceways in the inboard position and the other row being between the inner and outer raceways in the outboard position. This correlates with the specification which now, by minor amendment, refers to a “tapered inner raceway” on each cone 80 (paragraph bridging pages 6 and 7), with the cones 80 in turn being referred to as an “inner” race (page 6, last full paragraph). It also refers to a “tapered outer raceway” on each cup 87 (page 7, first full paragraph), with cups 82 in turn being referred to as an “outer” race (page 6, last full paragraph). Moreover, the specification describes “inboard raceways” and “outboard raceways”, reciting that they are inclined in opposite directions (page 7, only

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full paragraph). With the terminology of claims 5 and 10 conforming to the terminology appearing in the specification, the claims should be comprehensible.

New independent claim 25 represents former dependent claim 7 in independent condition and as such includes all of the limitations of former claims 1, 2, 5, 6 and 7. Actually, original claim 7 specified that the target wheel is accessible from the back face of the radial portion of the housing, when it should have recited that the sensor is accessible from the back face of the radial portion. New claim 25 corrects this error. Claim 25 is believed to be allowable in view of paragraph 8 of the official action.

New claim 26 represents former claim 12 in independent condition, and as such includes all the limitations of former claims 9, 10, 11 and 12. It is also believed to be allowable in view of paragraph 8 of the official action.

Apart from claims 25 and 26, the application contains two additional independent claims – namely, claim 27 which is new and claim 9 which has been amended. Both, from the standpoint of patentability, more than adequately distinguish applicant's wheel mounting from the wheel mountings disclosed in U.S. patent 4,786,115 (Ashberg) which the examiner relied upon for rejecting most of the original claims. That patent in Fig. 2 shows an outer race 20 within which a hub rotates, with the hub having a spindle-like projecting portion 28 and a flange 25, and an inner race ring 21 interposed between the two. The hub rotates in the outer race 20 on bearings 20, 21, 22, 24 and carries a rotor including a drum 31 and a disk 27. Within the drum 31 is a park brake 32. Extending

outwardly from the outer race 20 is a member which appears to be a relatively thin sheet metal stamping designed to exclude contaminants from the interior of the claim 31. Whatever it is, it is not described. Fig. 1 of the Ashberg patent, according to the patent, depicts prior art over which Figs. 2 and 3 represent on improvements. Fig. 1 shows an axle end including a housing on which a caliper-type service brake appears to be mounted. Fig. 1 also shows a park brake 9, but it does not appear to be mounted on the housing to which the service brake seems to be mounted. Indeed, neither Fig. 1 nor the discussion relating to it reveals how the park brake is mounted.

New claim 27 calls for a housing having a radial portion and sleeve-like axial portion, with the axial portion projecting from at least the front face of the radial portion. According to the claim, the radial portion and the axial portion are formed integral. This enables the axial portion to be made smaller and eliminates bolt heads and flanges, providing more space for the park brake. Thus, the housing is an integral unit, not a unit composed of bolted-together components. The claim goes on to call for a hub having a shaft which projects into the axial portion of the housing and a bearing located between the shaft and the axial portion for enabling the hub to rotate in the housing. According to the claim, the radial portion of the unitary housing has elements for securing a service brake to the housing and another element for positioning a parking brake on the housing, with the latter being along the front face of the radial position. The Ashberg patent does not show this combination nor does it suggest it.

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Interpreting the Ashberg patent, the examiner finds a housing having a radial portion in the form of the metal stamping that serves to exclude contaminants and an axial portion in the form of the projecting portion 28. But the so-called radial portion appears to be attached to the outer race 20, whereas the axial portion 28 forms part of the hub. The hub rotates in the outer race 20 so the perceived radial and axial portions cannot be formed integral as claim 27 requires. The Ashberg patent does not show a housing in which a hub rotates, with the housing having a radial portion provided with elements to secure and position both a service and a park brake, and an axial portion for receiving a bearing, with the axial portion being formed integral with the radial portion to form a unitary housing. Neither Fig. 1 nor Fig. 2, nor for that matter Fig. 3, of the Ashberg patent show a unitary housing having the features discussed. Indeed, it seems incredible that one of ordinary skill in the art of designing automotive wheel ends could produce a unitary wheel end of the type set forth in claim 27 from a consideration of the Ashberg patent. It does not have the features claimed, nor does it suggest them.

The European Patent Office in the search it conducted on the corresponding PCT application cited U.S. patent 5,715,916 (Fanelli). That patent shows an outer race 54 in which a hub 31 rotates on bearings 11 and 70. The outer race 54 includes a flange 56 to which a backing plate 23 is attached with bolts. This does not differ from traditional wheel ends. To be sure, the outer race 54 has an actuator body 15 which appears to be formed integral with it as a downward extension of its flange 56. The

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actuator body 15 serves as a mount for a park brake 10 having a shoe 9 that expands against a drum 7 on a rotor 8 that is bolted to the hub 31. Like the Ashberg patent, the Fanelli patent does not show on a housing a radial portion formed integral with an axial portion and having elements for securing and positioning both a service brake and a park brake. At most it shows a radial portion that serves as a mounting for a park brake.

The information disclosure statement submitted herewith presents SAE paper 920552, perhaps the most pertinent part of which is Fig. 16. At best it shows no more than the Fanelli patent, so what has been said with respect to the Fanelli patent applies to SAE paper.

Claims 2-6, 8, 28 and 29 depend from claim 27 and are believed allowable for the reason advanced in the discussion of claim 27.

Independent claim 9, as amended is even more limited in scope than claim 27. It is believed to be allowable for the reasons advanced in the discussion of claim 27. The same holds true with regard to claims 10, 11 and 13-16 which depend from claim 9.

A new drawing page containing Figs. 4 and 5 is submitted herewith. It should correct the drawing deficiency noted in paragraph 3 of the official action.

A check in the sum of \$86 is submitted herewith to cover the cost of examining one independent claim in addition to the three filed with the application.

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In view of the foregoing, favorable consideration and allowance of the application with 21 claims — namely, claims 2-6, 8-11, 13-18 and 25-30 — are respectfully submitted.

Respectfully submitted,



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